UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,840	11/11/2003	Charles E. Baumgartner	124331	6920

41838 7590 02/08/2006

GENERAL ELECTRIC COMPANY (PCPI)
C/O FLETCHER YODER
P. O. BOX 692289
HOUSTON, TX 77269-2289

EXAMINER	
PIAZZA CORCORAN, GLADYS JOSEFINA	
ART UNIT	**PAPER NUMBER**
1733	

DATE MAILED: 02/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/706,840	BAUMGARTNER ET AL.	
	Examiner	Art Unit	
	Gladys JP Corcoran	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 November 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18 and 23-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-18 and 23* is/are allowed.

6)☒ Claim(s) *24-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 24-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claims 24-27 are unclear in that they recite terms not consistent with the terms used in the Specification. The claimed embodiment in claims 24-27 is described in the Specification on page 5 line 24 to page 6 line 2 and on page 8 lines 3-9. The Specification discloses that the stacked plates are bonded to form a bonded "block" (not a stack as claimed) and that the bonded "block" is cut along parallel planes perpendicular to the metal layers to form a plurality of "stacks (not bars as claimed). It is suggested to amend all the claims to recite the same terms as used in the Specification in order to avoid confusion.

4. Claim 26 recites the limitation "placing the layers of dielectric material" in lines 3-4. There is insufficient antecedent basis for this limitation in the claim. It is suggested to depend claim 26 from claim 25.

5. Claim 27 recites the limitation "placing the first and second dielectric layers" in lines 7-8. There is insufficient antecedent basis for this limitation in the claim. It is suggested to depend claim 26 from claim 25 (since claim 27 is dependent upon claim

26, changing the dependency in claim 26 to claim 25 would provide antecedent basis in claims 26 and 27).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 24, are rejected under 35 U.S.C. 102(b) as being anticipated by Gururaja (US Patent No. 6,225,728).

Gururaja discloses a method of placing layers of metal (electroplated layers on surfaces 236 and 237) on both sides of each of a plurality of plates of ceramic material (PZT wafer 235), stacking the metallized plates with metal layer facing metal layer (see figures 9A-G), each pair of contacting metal layers forming a respective electrode (the layers are considered contacting in that they are facing each other and are contacted through the epoxy polymer layer 238, it is noted that the claims do not require direct contacting and Applicant's Specification even discloses providing epoxy glue between the metal layers for bonding), bonding the stacked plates to form a bonded stack (stack 262) and cutting the bonded stack along parallel planes perpendicular to the metal layers to form a plurality of bars (elements 230) (column 7, lines 24-54).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gururaja (U.S. Patent 6,868,594) as set forth above for claim 24 and further in view of Busse et al. (U.S. Patent 5,359,760).

As to claim 25, Gururaja discloses providing the faces of the bars with electrodes which are connected to odd numbered electrodes on one face and even numbered electrodes on the opposite face (column 7, lines 50-54). It is considered well known in the transducer art to provide electrodes on the faces of transducer bars by providing a dielectric layer which supports a pattern of metal with vias in the dielectric layer substrate to electrically connect the metal patterns to the electrodes in the bar. For example, Busse discloses providing electrodes to the faces of transducer bars by providing a flex circuit element (dielectric material) (Column 6, lines 57-68). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the electrodes as shown in the method of forming transducers as shown by Gururaja as a dielectric material with a metal pattern with vias for electrical connection as is considered conventional in the art and further exemplified by Busse, only the expected results would be attained.

10. Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gururaja (U.S. Patent 6,868,594) in view of Busse et al. (U.S. Patent 5,359,760) as applied to claim 25 above, and further in view of Shoup (US Patent No. 4,939,826).

As to claim 26, Gururaja discloses cutting the stack into bars prior to placement of the electrodes. It is considered well known in the art of cutting transducer bars to cut the bars in a width larger than desired for the end width and then grinding the faces of the bar to the appropriate width in order to obtain the desired width with a high degree of flatness. Shoup discloses an example in the art of grinding the faces of the cut bars in order to achieve the desired width (column 5, lines 20-23). It would have been obvious to one of ordinary skill in the art at the time of the invention to grind the faces of the bars in the method of forming transducers as shown by Gururaja and Busse in order to provide the desired width of the bars and to produce flat surfaces as is considered conventional in the art and further exemplified by Shoup.

As to claim 27, Gururaja discloses recessing (channels 265, 266) the edges of at least some of the odd numbered electrodes from one face of the bar and even numbered electrodes from the other face of the bar and filling the recesses with electrically isolating material before placing the electrodes on the faces of the bar (column 7, lines 43-54).

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422

F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 24-27 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-24 of copending Application No. 10/706,820 in view of Gururaja (US Patent No. 6,225,728), Busse et al. (U.S. Patent 5,359,760) and Shoup (US Patent No. 4,939,826).

Claims 1-24 of Application No. 10/706,820 recite all the limitations of claims 24-27 except for the limitations that layers of metal are placed on both sides of the ceramic material. Such is considered well known in order to form a stack with any number of layers as shown in the art by Gururaja as discussed above. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the ceramic material layers in the claims 1-24 of Application No. 10/706,820 with metal on both sides of the ceramic as is well known in the art and exemplified by Gururaja in order to provide a stack with any desired number of layers. As to claims 25-27, claims 1-24 of Application No. 10/706,820 disclose applying the dielectric layers and as to the additional limitations, such are considered conventional in the art when forming transducer work pieces as shown by Gururaja, Busse and Shoup as discussed above.

This is a provisional obviousness-type double patenting rejection.

Allowable Subject Matter

13. Claims 1-18, 23 are allowed.

14. The following is a statement of reasons for the indication of allowable subject matter: The claims 1-18 and 23 are allowed for the reasons as set forth in paragraph 6 of the prior Office Action filed on March 30, 2005.

Response to Arguments

15. Applicant's arguments filed October 14, 2005 have been fully considered but they are not persuasive.

Applicant argues on page 9 that the claim 24 includes recitations essentially similar to those of claim 23 except for the plurality of plates of ceramic material and is therefore allowable. Claim 24 does not recite all the limitations which have been indicated allowable for claims 1 and 23, in particular the step of cutting the metallized ceramic plate along parallel planes perpendicular to the metal layers to form a multiplicity of bars which are then stacked and bonded with metal layer facing metal layer to form an electrode. Claim 24 covers essentially the same subject matter as original claim 19 which was rejected in the prior Office Actions.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gladys JP Corcoran whose telephone number is (571) 272-1214. The examiner can normally be reached on M-F 8am-5:30pm (alternate Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gladys JP Corcoran
Primary Examiner
Art Unit 1733

GJPC